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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,836	10/07/2003	Richard S. Bickham	CE10048R (78907)	5377
22242	7590	03/09/2006	EXAMINER	
FITCH EVEN TABIN AND FLANNERY 120 SOUTH LA SALLE STREET SUITE 1600 CHICAGO, IL 60603-3406			LE, NHAN T	
		ART UNIT		PAPER NUMBER
				2685

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/680,836	BICKHAM ET AL.	
	Examiner Nhan T. Le	Art Unit 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 07 October 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 14-24 is/are allowed.
- 6) Claim(s) 1-13 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>05/27/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-7, 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al (US 6,801,767) in view of LaGrotta et al (US 2003/0027597).

As to claims 1, 10, 13, Schwartz teaches a radio frequency power device module comprising: an active radio frequency power device (see fig. 3b, number 352, col. 14, lines 14-48) having a control signal input; digital control logic to the active radio frequency power device and having: an information input (see fig. 3b, numbers 355-1, -2, -3, col. 14, lines 14-48) ; and a control signal output (see fig. 3b, gain control, col. 14, lines 14-48) that is operably coupled to the control signal input of the active radio frequency power device; a free-space optical communications (see fig. 3b, number 351, col. 14, lines 14-48) to the active radio frequency power device and having a received signal output that is operably coupled to the information input of the digital control logic. Schwartz fails to teach the control logic and free-space optical communications formed integral to the radio active device. LaGrotta teaches the control logic and free-space optical communications formed integral to the radio active device (see fig. 3, numbers 240, paragraphs 0022-0025). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of LaGrotta

into the system of Schwartz in order to create the communication system with smaller size and less expensive (as suggested by LaGrotta paragraph 0007).

As to claim 2, the combination of Schwartz and LaGrotta teaches an operational status detector formed integral to the active radio frequency power device and having: an input that is responsive to an operational state of the active radio frequency power device (see Schwartz fig. 3b, number 379, col. 15, lines 57-67, col. 16, lines 17); and a detected status output that is operably coupled to an input of the free-space optical communications interface (see Schwartz fig. 3b, number 379, col. 15, lines 57-67, col. 16, lines 17).

As to claims 3-5, 11, the combination of Schwartz and LaGrotta teaches wherein the operational state comprises a radio frequency power condition that is associated with the active radio frequency power device (see fig. 3b, number 352, col. 14, lines 14-48); wherein the direct current value comprises a bias level (see col. 14, lines 14-48); wherein the radio frequency power condition comprises at least one of forward and reflected power levels (see fig. 3b, numbers 367, 368, col. 14, lines 14-48).

As to claim 6, the combination of Schwartz and LaGrotta teaches a data formatter (see Schwartz col. 17, lines 1-14) that is operably coupled between the detected status output of the operational status detector and the input of the free-space optical communications interface.

As to claim 7, the combination of Schwartz and LaGrotta teaches wherein the active radio frequency power device comprises a radio frequency power amplifier (see Schwartz fig. 3b, number 352, col. 14, lines 14-48).

As to claims 9, 12, the combination of Schwartz and LaGrotta teaches one controller formed integral to the active radio frequency power device and having: an input that is operably coupled to an output of the free-space optical communications interface (see Schwartz fig. 3b, number 352, col. 14, lines 14-48); and a control signal output that is operably coupled to the control signal input of the active radio frequency power device (see Schwartz fig. 3b, gain control, col. 14, lines 14-48).

2. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al (US 6,801,767) in view of LaGrotta et al (US 2003/0027597) further in view of Hiraoka et al (US 6,448,505).

As to claim 8, the combination of Schwartz and LaGrotta fails to teach wherein the free-space optical communications interface comprises an emitter structure and a separate detector structure that are each implemented at least in part in a monocrystalline Group III-V compound semiconductor substrate layer. Hiraoka teaches wherein the free-space optical communications interface comprises an emitter structure and a separate detector structure that are each implemented at least in part in a monocrystalline semiconductor substrate layer (see col. 5, lines 15-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Hiraoka into the system of Schwartz and LaGrotta in order to create the substrate with a single continuous crystal.

***Allowable Subject Matter***

Claims 14-24 are allowed over the prior art.

Regarding to claim 14, Schwart et al (US 6,801,7670 teaches method and system for distributing multiband wireless communication signals; LaGrotta et al (US 2003/0027597) teaches use of over the air optical link within a geographically distributed base station; Hiraoka et al (US 6,448,505) teaches substrate for mounting an optical component, a method for producing the same, and optical module using the same. The teaching of the prior art either combined or alone fails to teach a diagnostic processing and control device chip, physically separated from the RF power device chip, having an optical signal detector/emitter component associated with diagnostic processing and control circuitry adapted to interpret the signals received from the RF power device chip and feed back at least one of error and compensating signals to the RF power device chip via the bi-directional optical link; and a processor control unit adapted to further interpret the data signals received from the RF power device chip and feed back commands to the diagnostics processing and control chip for providing feed back signals to the RF power device chip effective to make an adjustment to an operating condition of the RF power device.

Dependent claims 15-24 are allowable for the same reason.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kim et al (US 20020080448) teaches signal transmission apparatus and method for optical base station.

Tang (US 5,339,184) teaches fiber optic antenna remoting for multi-sector cell sites.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Le whose telephone number is 571-272-7892. The examiner can normally be reached on 08:00-05:00 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

N.Le

Nhan Le

Nguyen Vo  
3-1-2006

NGUYEN T. VO  
PRIMARY EXAMINER